11 How do you do it?

Testing

1 What do these words mean?

Flammable	Inflammable
Non-flammable	Flame

2 11.1 Listen to someone describing flammability tests on fabrics.

1 How many tests do they describe?
2 What does each test measure?
3 Which test is the most important?

3 11.1 Listen again and complete the sentences.

1 We take ..... and attach them to metal frames.
2 Then we .... to them.
3 First we see how fast the fabric .... We time it.
4 Then we test another sample to see how far the flames .....
5 If the fabric ..... that test, we do a third test. We take a larger piece of fabric and see how far and how fast the flames spread.

4 Find words and phrases in **3** which mean:

1 begins to burn
2 make something begin to burn
3 is not successful, has a bad result
4 specimens, small quantities of a product that show what the rest is like
5 expand to cover a larger area.

5 Read this written description of the same tests. How is the language different?

Flammability test procedure

Fabric samples are attached to a metal frame and *a small flame is applied*. In the first test, the time the fabric takes *to ignite* is recorded. In the second test, *the distance* the flames spread is measured. If the fabric fails the second test, *a third test is performed*. A larger sample is taken and *timings over distance are calculated*.

Look at the words and expressions in *italics*. Find more informal ways to say these things in **3**.

Example
a small flame is applied = *we set fire to them*

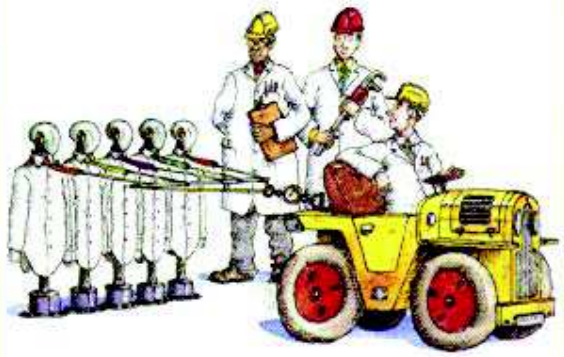
Present passive

We form the passive with the verb *be* and the past participle.
Active: *We attach a piece of fabric to a metal frame.*
Passive: *A piece of fabric* **is attached** *to a metal frame.*
Active: *We take larger samples of the fabric.*
Passive: *Larger samples of the fabric* **are taken.**

6 We often use passives in written procedures. Find examples of passives in the written description of the flammability test procedure in **5**.

7 These pictures show three different quality tests for ties. What is each test measuring? What's the procedure?

1



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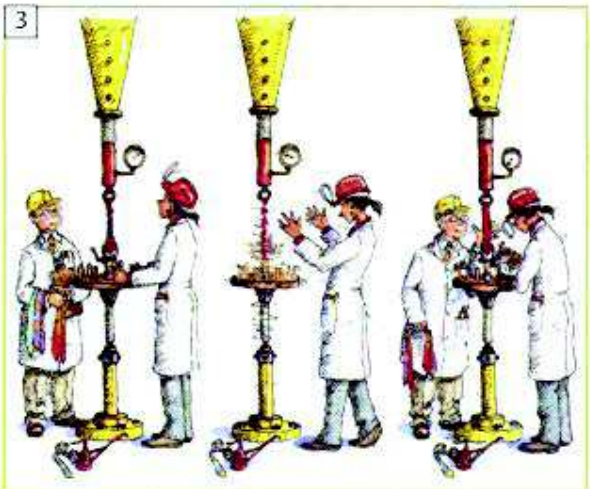


8 Complete this description of the tests. Put the verbs in brackets into the passive.

In the first test, the samples *are tied* (tie) around the necks of five dummies. The ends .....[1] (attach) to a metal bar on the back of a car, and the car .....[2] (drive) away. The distance the car can travel before the ties tear .....[3] (measure).

In the second test, some samples .....[4] (fold) and .....[5] (place) under pieces of wood and heavy pressure .....[6] (apply). Then they .....[7] (examine) for creases. If the ties pass this test, a second crease test .....[8] (perform).

A sample tie .....[9] (hang) from a ring and the ends .....[10] (fasten) to a wooden wheel. The wheel .....[11] (rotate) many times. When it cannot be rotated any more, it .....[12] (release) and the sample .....[13] (inspect).

9 Brainstorm some more quality tests for ties. What other things could you measure?

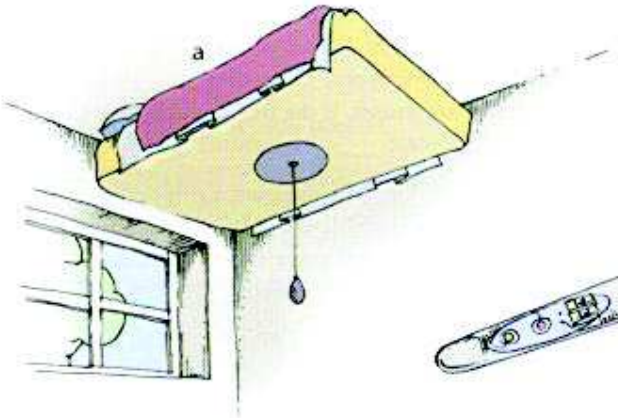
Work with some other students. Create another test for ties. Draw a picture or diagram and prepare to show it to the class.

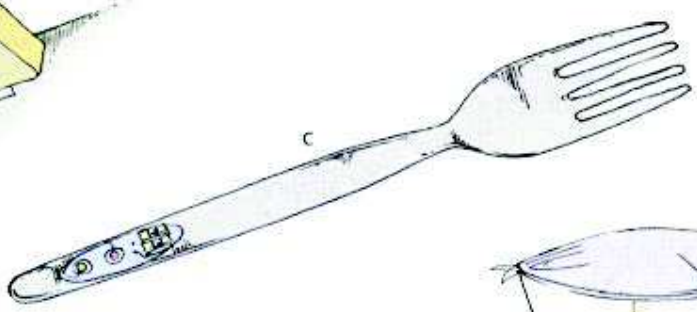
10 Explain your test to the class. Explain what it measures and how it works. Then write a description of the test procedure. Use passives where necessary.

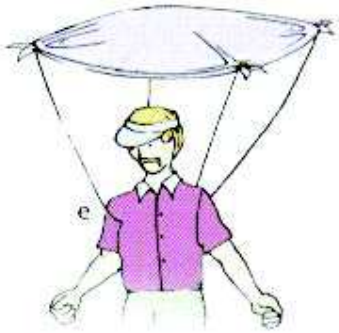
Understanding instructions

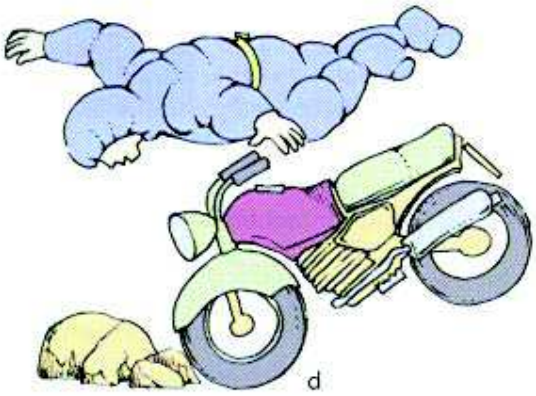
1 These inventions have all received US patents.

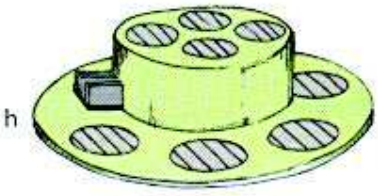
1 What are they for?
2 What parts and components do they have?
3 How do they work?











2 Find out if you were right. Match these descriptions to the devices.

1 Put on this suit before going for a ride. In a crash, it swells with compressed gas and protects your head, arms, body, and legs.

2 Pull the rope to lower this floating bed to the floor at bedtime. It is filled with helium gas, so you can store it on the ceiling when not in use.

3 Lose weight by eating with this fork. It has sensors that time your mouthfuls. When the red light comes on, you wait. When the green light comes on, you take another mouthful.

4 Attaching your golf club to the high pressure pump makes your balls go further. The golf club is hollow and the pump forces water through the hose, down into the club and out of the back.

5 Keep cool on hot days by wearing this sunhat. Its solar cells power a small radiator at the front.

6 Put these tubes on your dog before serving its dinner. They stop its ears falling in its food.

7 Use this device to lift fish out of the water. The balloon floats on the surface. When a fish bites, it fills with gas, hooks the fish, and lifts it out of the water. Then it's easy to bring in.

8 Wearing this balloon on hot days protects you from sunburn. It is filled with helium gas so it floats above your head.

Two-part instructions

Sometimes instructions contain extra information:

a *Do X by doing Y*
= Y causes X

b *Do X before doing Y*
= You have to do X first

c *Do X (in order) to do Y* or *Doing X does Y*
= X causes Y

3 Look at the sentences in the texts in **2**. What two-part instructions do they contain?

Example
Put on this suit before going for a ride = instruction b

4 Choose the correct answer to complete these sentences.

a Use this balloon to *protect/protecting* yourself from the sun.
b *Wear/wearing* this hat keeps you cool.
c Protect your body by *wear/wearing* this safety suit.
d Pull fish out of the water easily by *use/using* this device.
e Attach this pump to your golf club before *hit/hitting* the ball.
f Put these tubes on your dog's ears *keeping/to keep* them clean.
g *Use/using* this fork helps you lose weight.
h Lower the bed to the floor before *get/getting* in it.

5 Work in pairs or small groups. Think of three more inventions. They can be any inventions you like, for example: the mobile phone, the electric light bulb, the submarine.

Write some brief two-part instructions for the invention and explain how it works. One person should write and the others should dictate and check spelling, etc. Then read your instructions to the class. The class must guess what the invention is.